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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,456	11/26/2003	Paul R. Sharps	1002	5958
41170	7590	03/22/2007	EXAMINER	
EMCORE CORPORATION 1600 EUBANK BLVD, S.E. ALBUQUERQUE, NM 87123			FICK, ANTHONY D	
ART UNIT		PAPER NUMBER		
		1753		
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE		
3 MONTHS	03/22/2007	PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/723,456	SHARPS ET AL.	
	Examiner	Art Unit	
	Anthony Fick	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 18 December 2006.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 48-80 and 82-98 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 48-80 and 82-98 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____
- 5) Notice of Informal Patent Application
- 6) Other: _____

DETAILED ACTION

Remarks

1. Applicant's amendments to claim 57 have overcome the previous rejection of the claim under 35 U.S.C. 112 second paragraph other than the rejection set forth below. Applicant's amendments to the claims have overcome the previous rejections of the claims over the prior art cited.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
3. Claims 48-80 and 82-98 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 48, at line 8, the "substantially the same composition and thickness" limitation is not supported by the specification, as originally filed. The same applies to dependent claims 49-51.

In claim 52, at line 7, the "substantially the same composition and thickness" limitation is not supported by the specification, as originally filed. The same applies to dependent claims 53-56.

In claim 57, at line 6, the "substantially the same composition and thickness" limitation is not supported by the specification, as originally filed. The same applies to dependent claims 58 and 59.

In claim 60, at line 12, the "substantially the same composition and thickness" limitation is not supported by the specification, as originally filed. The same applies to dependent claims 61-64.

In claim 65, at line 11, the "substantially the same composition and thickness" limitation is not supported by the specification, as originally filed. The same applies to dependent claims 66 and 67.

In claim 67, at line 2, the range "as least in part" for the GaAs fabrication is not supported by the specification, as originally filed.

In claim 68, at line 9, the "substantially the same composition and thickness" limitation is not supported by the specification, as originally filed. The same applies to dependent claims 69-76.

In claim 77, at line 10, the "substantially the same composition and thickness" limitation is not supported by the specification, as originally filed. The same applies to dependent claims 78-80 and 82-87.

In claim 88, at line 10, the "substantially the same composition and thickness" limitation is not supported by the specification, as originally filed. The same applies to dependent claims 89-92.

In claim 93, at lines 8-9, the "substantially the same composition and thickness" limitation is not supported by the specification, as originally filed. The same applies to dependent claims 94-98.

Applicant cites the Rule 1.132 Declaration of Paul R. Sharps (Sharps Declaration) and argues that in a chemical vapor deposition process of the type described in the instant application, layer thicknesses are not the same because of variations caused by the deposition process. However, this argument is not deemed to be persuasive because the word "substantially" is never used in the originally filed disclosure to describe any part of the invention. The word "substantially" introduces a "fudge factor" that opens up whatever it is modifying to interpretation. Such interpretation is not supported by the original disclosure. If Applicant had wanted to introduce a fudge factor because things aren't perfect, it should have been done when the application was originally filed.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 48-80 and 82-98 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 48, at line 9, it is not clear what is to be encompassed by the term "substantially the same composition and thickness". The same applies to dependent claims 49-51.

In claim 52, at line 7, it is not clear what is to be encompassed by the term "substantially the same composition and thickness". The same applies to dependent claims 53-56.

In claim 57, at line 6, it is not clear what is to be encompassed by the term "substantially the same composition and thickness". The same applies to dependent claims 58 and 59.

In claim 60, at line 12, it is not clear what is to be encompassed by the term "substantially the same composition and thickness". The same applies to dependent claims 61-64.

In claim 65, at line 11, it is not clear what is to be encompassed by the term "substantially the same composition and thickness". The same applies to dependent claims 66 and 67.

In claim 68, at line 9, it is not clear what is to be encompassed by the term "substantially the same composition and thickness". The same applies to dependent claims 69-76.

In claim 77, at line 10, it is not clear what is to be encompassed by the term "substantially the same composition and thickness". The same applies to dependent claims 78-80 and 82-87.

In claim 88, at line 10, it is not clear what is to be encompassed by the term "substantially the same composition and thickness". The same applies to dependent claims 89-92.

In claim 93, at lines 8-9, it is not clear what is to be encompassed by the term "substantially the same composition and thickness". The same applies to dependent claims 94-98.

With respect to the term "substantially the same thickness" being indefinite under 35 USC 112, second paragraph, applicant cites the same arguments used above with respect to this term and 35 USC 112, first paragraph. However, these arguments are not deemed to be persuasive because it is not clear how close to having the same thickness the corresponding layers must have in order to be considered to have "substantially the same thickness".

Response to Arguments

6. Applicant's arguments filed December 18, 2006 with respect to the rejections under 35 U.S.C. 112 have been fully considered but they are not persuasive.

Regarding the rejections made under 35 U.S.C. 112 first paragraph, applicant reiterates arguments for support for the limitation "substantially the same composition and thickness" and argues the examiner has misinterpreted the requirements of 35 U.S.C. 112. The examiner respectfully disagrees. The original specification does not contain support for the broadening language "substantially the same composition and thickness". Slight variations in thickness and composition are inherent for any deposited film and one skilled in the art would recognize such variations upon reading the specification. However this does not give support to broadening of the claim language to include the term "substantially". If those skilled in the art would already recognize that the methods utilized by the applicant produces layers that can be

characterized by having "the same" composition and thickness, while actually having small variations in thickness and composition, altering the claims to include the term "substantially" seems to be adding more variations than the typical variations present in layers of "the same" composition and thickness. These added variations are beyond the scope of the original claims or specification and seem to be superfluous if as applicant states, those in the art understand that layers with "the same" composition and thickness can have small variations. Therefore the addition of the terms constitutes new matter and the rejection is maintained. Applicant also argues against the rejection of claim 67 by stating the specification describes an embodiment with a bottom cell containing layers of germanium. This argument is not deemed persuasive because applicant fails to show that the bottom cell contains GaAs and another material so that the limitation of "at least in part" is supported. The present figures show only a Ge cell as the base.

Regarding the rejections made under 35 U.S.C. 112 second paragraph, applicant argues that the claim language is clear and the term "substantially the same thickness" corresponds to variations of up to two to three percent citing the declaration of the applicant. At the outset, the examiner notes that there is no description of such "normal variations" in the specification as filed, and the designation of two to three percent variation in a declaration does not render the claim language definite. It is not clear how close to having the same thickness the corresponding layers must have in order to be considered to have "substantially the same thickness". There is no basis in the

specification as filed for interpretation of the unsupported term "substantially", and the claims are therefore not properly defined.

7. Applicant's arguments, see pages 21 to 32 of Remarks, filed December 18, 2006, with respect to the rejections under 35 U.S.C. 102 and 103 for the amended claims have been fully considered and are persuasive. The rejections under 35 U.S.C. 102 and 103 of claims 48-80 and 82-98 have been withdrawn.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Fick whose telephone number is (571) 272-6393. The examiner can normally be reached on Monday thru Friday 7 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Anthony Fick *AOF*
AU 1753
March 15, 2007

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